REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Claim 6 has been slightly amended to further clarify matters as will be discussed hereinafter. This amendment does not alter the scope of the claims, does not raise new issues, and does not require further search by the Examiner. As such, it is respectfully submitted that this amendment, which reduce issues for appeal, should be entered.

The Examiner has rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,183,681 to Sullivan et al. in view of U.S. Pat. No. 6,334,548 to Ichikawa et al. and U.S. Pat. No. 5,334,010 to Teng. The Examiner's rejection is traversed for the following reasons.

The present application relates to an injection-molding method for covering a front face of a plate-shaped member with a front side molded layer by injection-molding using a first die and a second die and a rear face of the plate-shaped member with a rear side molded layer by injection-molding using the first die and a third die. The injection-molding method includes the step of preparing the first die having a front side cavity face provided in opposed relation to a mating face of the second die for covering the front face of the plate-shaped member, a first gate opening at the front side cavity face and extending substantially perpendicularly to the mating face of the second die, a second gate provided in such a manner as to

bypass the front side cavity face and to open at a face to be mated with the second die and having a portion extending from an opening at the face to be mated with the second die substantially perpendicularly to the face to be mated with the second die, and switching means for guiding molding material to either one of the first and second gates. The injection-molding method also includes the steps of preparing the second die having a receiving face for receiving the rear face of the plate-shaped member and preparing the third die having a rear side cavity face for covering the rear face of the plate-shaped member, and a substantially J-shaped connecting passage opening at the rear side cavity face and at a face to be mated with the first die so as to fluidly connect the second gate to the rear side cavity face and having a portion extending from an opening at the face to be mated with the first die substantially perpendicularly to the face to be mated with the first die. The injection-molding method further includes the steps of sandwiching the plate-shaped member with the first die and the second die and forming a front side cavity with the front side cavity face of the first die and the front face of the plate-shaped member and injecting a molding material through the first gate into the front side cavity to mold the front side molded layer. The injection-molding method also includes the steps of replacing the second die with the third die and thereby forming a rear side cavity with the rear side cavity face of the third die and the rear face of the plate-shaped member and injecting a molding material from the second gate through the connecting passage into the rear side cavity to mold the rear side molded layer.

Sullivan involves a multi-stage insert molding method. In particular, a molded assembly (10) includes two halves (10A, 10B) that are divided by a parting line (12) and an inserted component (14). Cavity A1 includes a cavity (16) and a runner (22).

Cavity B1 includes a runner (20) and location pins (18). Cavity B2 is also provided with a cavity (24).

Ichikawa relates to a plastic container formed by an insert-injection process. Specifically, Ichikawa includes a mold (20) for making a coffee-container (10). The mold has the first cavity (21) for forming a large-diameter-formed member of the coffee-container (10) and a second cavity (22) for forming a small-diameter-formed member of coffee-container (10).

Teng involves a valve gated injection molding apparatus. In particular, Teng includes a mold (20) with steel nozzles (14) to disperse plastic melt to gates (16) that lead to different cavities (18). Teng further includes a valve member (80) with an elongated shaft (82) that has a tapered front end (84) and an enlarged head (86) at the rear end (88). The rear end (88) of the valve member (80) is engaged by a piston (90) that reciprocates in a cylinder (92).

Claim 6 of the present application recites the step of "preparing the first die having ... a second gate provided in such a manner as to bypass the front side cavity face and to open at a face to be mated with the second die and having a portion extending from an opening at the face to be mated with the second die substantially perpendicularly to the face to be mated with the second die". The cited references fail to teach or suggest this step. In Sullivan, the runner (gate) for guiding the molding material into the cavity runs parallel to the to-be-mated face. In Ichikawa, the runner (gate) is bent at right angles at a position where a direction is changed. Additionally, as Teng it cited for teaching the switching means, it too fails to cure the deficiencies of Sullivan and Ichikawa. Therefore, the rejection of claim 6 should be removed.

Claim 6 also recites the step of "preparing the third die having ... a substantially J-shaped connecting passage". In support of this rejection, the Examiner points to Sullivan. For convenience, Fig. 4 of Sullivan is shown below.

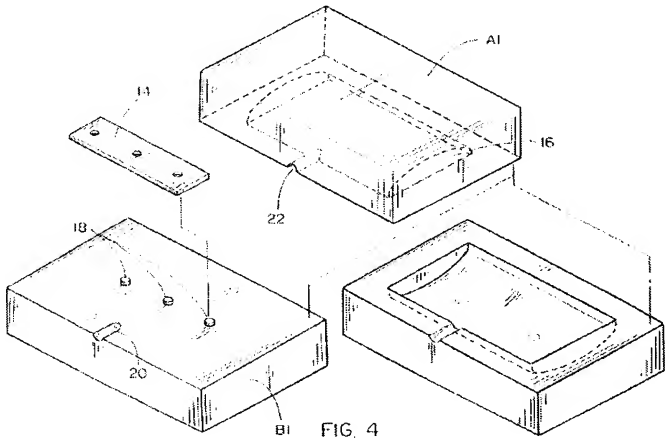

FIG. 4

After review of the above figure, it is considered apparent that the connecting passage (20, 22) of Sullivan is straight, and not substantially J-shaped as required by claim 6. Accordingly, removal of the rejection of claim 6 is hereby requested.

Claim 6 further recites the steps of "preparing the first die having ... a second gate" and "injecting a molding material from the second gate through the connecting passage into the rear side cavity to mold the rear side molded layer." None of the references, either alone or in combination, teach or suggest these steps. For reference, claim 6 of the present application also recites the step of "preparing the third die having ... a substantially J-shaped connecting passage". In support of the rejection, the Examiner points to the runners (20, 22) of Sullivan as being the connecting passage of the present application. In recognition that Sullivan lacks the second gate, the Examiner cites to Ichikawa.

However, Ichikawa fails to cure the deficiencies of Sullivan. Ichikawa merely teaches a branched runner (gate) (24) for guiding a molding material into two

cavities separated from each other and located differently in a single die. Thus, the mere application of Ichikawa to Sullivan would not result in the claimed arrangement. None of the references, either alone or in combination, teach the provision of the second gate in the first die so as to guide the molding material to a separate die (third die), as recited in claim 6 of the present application. As discussed in Amendment A, Ichikawa has a ***single*** die (20) with a single runner (24) that has two branches that are supplied by the gate (25). The top branch supplies the first cavity (21) and the bottom branch supplies the second cavity (22). However, neither of the branches of the runner (24) of the die (20) supplies a second die. The combination of Ichikawa with Sullivan would not result in the step as recited in claim 6 of the present application.

In the final Office action, the Examiner indicates that "Ichikawa teaches a mandrel 23, and the branches of the runner 24 of the die 20 supply resin to the first cavity 21 and the second cavity 22, which are positioned between the die 20 and the mandrel 23 (see fig. 2)" (Pg. 5, lines 7-9). Because of this, the Examiner feels that the combination of Sullivan and Ichikawa teaches this step.

It is assumed that the Examiner is suggesting that there are two different dies that are being supplied by the runner (24) of Ichikawa since the mandrel (23) passes within the die (20) and that the die (20) would separate to allow removal of the mandrel (23) upon molding of the coffee-container (10). However, the die (20) is one piece and the mandrel (23) is pulled out through the top of the die (20). In fact, Ichikawa teaches that it "is possible to easily pull the mandrel 23 from the mold without being hindered by the upper-formed member 13 due to the fact that the inside diameter of the first cavity 21 of the mold 20 is larger than the outside

diameter of the second cavity 22 thereof" (Col. 12, lines 6-9). Accordingly, it is considered apparent that the mandrel (23) is removed through the top of the die (20) and the die (20) is one piece. As such, Ichikawa fails to reveal what the Examiner suggests. As Ichikawa teaches a ***single*** die (20) that includes a runner (24) with two branches that are supplied by the gate (25), and neither of the branches of the runner (24) of the die (20) supplies a second die, Ichikawa fails to cure the deficiencies of Sullivan. In particular, the references fail to teach the step of "injecting a molding material from the second gate through the connecting passage into the rear side cavity to mold the rear side molded layer", "preparing the first die having ... a second gate", and "preparing the third die having ... a substantially J-shaped connecting passage".

At best, the combination of Sullivan and Ichikawa would result in an injection molding apparatus with multiple dies that each have multiple runners that go between the gates and the cavities. However, the combination of Sullivan and Ichikawa would not allow for the step of injecting the molding material from the first die into the third die, and then into the cavity as recited by claim 6 of the present application. Finally, it is noted that Teng is cited for teaching the switching means and does not cure the above mentioned deficiency with regard to the required step. Therefore, it is respectfully submitted that the proposed combination of references would not arrive at invention defined in claim 6, and the rejection of claim 6 should be removed.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is

invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. SHM-16129.

Respectfully submitted,

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